

AquiPod User Manual

Introduction

AquiPod is an underwater data collection device consisting of an iPod or iPhone in a watertight enclosure. It can be deployed to depths up to 30 meters, collect standard or time lapse video, and record acoustic data recording using a hydrophone. An AquiPod consists of the following components:

- 4 inch watertight enclosure and electronics tray manufactured by Blue Robotics
- iPhone 4s
- Aquarian H2a-XLR hydrophone
- iRig Pre amplifier
- 16.8 amp/hr. 5 volt power pack
- External deployment fixture

Fig. 1 are views of the internal electronics tray showing the iPhone and power pack on one side, and the iRig preamp on the other.

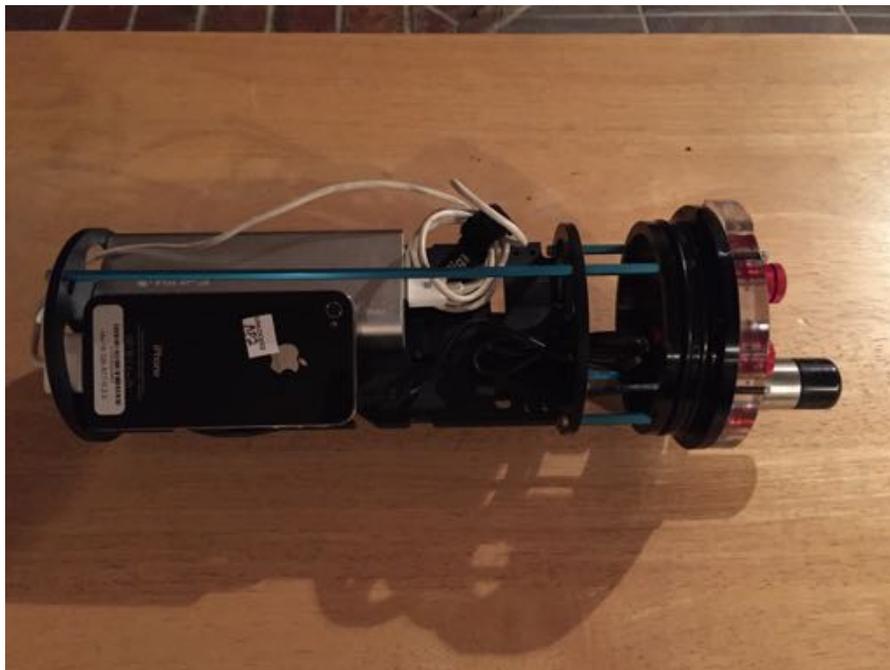


Fig. 1a One side of the parts tray contains the iPhone and power pack

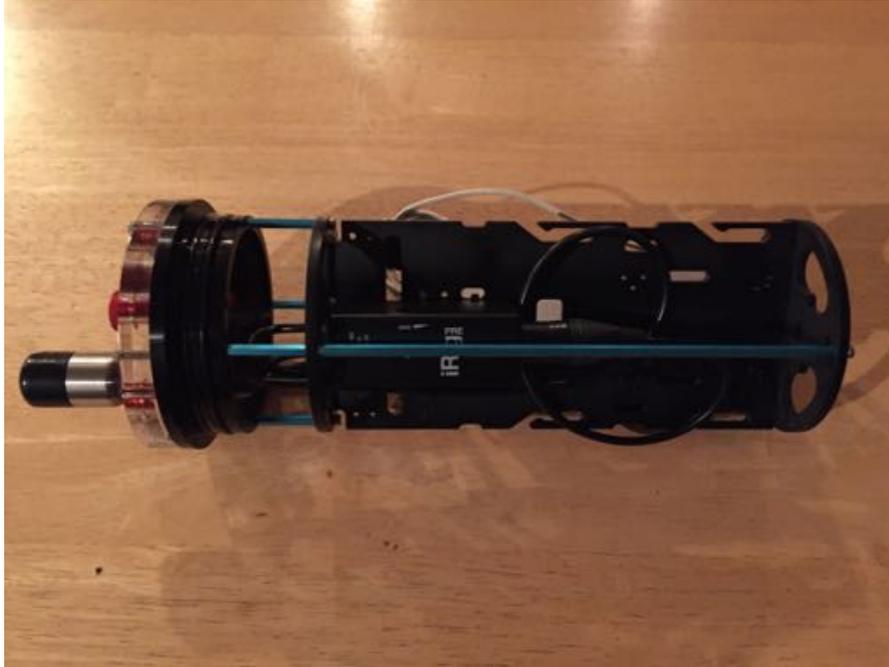


Fig. 1b Other side contains the iRig hydrophone preamp

This manual describes basic procedures needed to use the device.

Remove watertight enclosure from deployment fixture

To setup the Aquipod for data collection or to retrieve the iPhone to access the collected data the watertight enclosure must be opened. The watertight enclosure must be removed from the deployment fixture before it can be opened (Fig. 2)

- Loosen but do not remove the screws on the top of the two threaded rods.
- Slide the top white PVC flange up about an inch so that you can lift, tilt, and remove the watertight enclosure from the fixture. **Be careful that do not damage the hydrophone mounted on top of the Aquipod.**

Open watertight enclosure

- Unscrew and remove vent plug.
- Carefully push up and remove the top end cap/o-ring flange assembly of the Aquipod using a slow even motion. It may require a little effort as the two rubber o-rings on the side of the assembly provide a snug fit.
- Be careful not to damage the hydrophone mounted on top of the Aquipod. **If the hydrophone should become loose do not use the device.**
- Replace vent plug.



Fig. 2 Watertight enclosure (left) next to deployment fixture (right). The deployment fixture holds the Aquipod in place by means of the two white PVC flanges.

Close watertight enclosure

It is important to close the watertight enclosure in a clean, low humidity environment to prevent leaks, fogging and condensation underwater.

- Inspect the double o-ring on the side of the end cap/o-ring flange assembly at the top of the Aquipod. If necessary, remove any dirt, hair, or other contaminants, and apply a small amount of silicone grease to the o-rings. (Silicone grease can be purchased at most hardware stores.)
- Wipe the inside of acrylic tube with a clean cloth.
- Remove the vent plug.
- Carefully slide the internal parts tray containing the iPhone, power pack, and iRig preamp into the watertight enclosure.
- Push down on the top end cap/o-ring flange assembly until it is seated on the acrylic tube.
- Insert the vent plug.

Make sure the iPhone and power pack have been properly installed and that an app is running before you close the device.

Insert watertight enclosure into deployment fixture

- Loosen but do not remove the screws on the top of the two threaded rods.
- They should be loosened enough for the top white PVC flange to be raised in order to insert the watertight enclosure into the fixture.
- Carefully tighten the top screws so that the white PVC flange is firmly seated on the top of the watertight enclosure. Make sure both white top and bottom flanges are centered inside the circle of small perimeter hex bolts that hold the top and bottom acrylic end pieces to the ends watertight enclosure. Periodically check these hex bolts for a tight fit.
- Adjust the height of the screws on the bottom of the top white PVC flange so that it does not bend as you tighten down on the top screws.

If you are using the camera, make sure it has a clear view and will not be obstructed by the polypropylene lines. Check that the screws on the top flange are tight enough to prevent the watertight enclosure from rotating inside the deployment fixture. Fig. 3 is the top view of the watertight enclosure inserted into the deployment fixture.

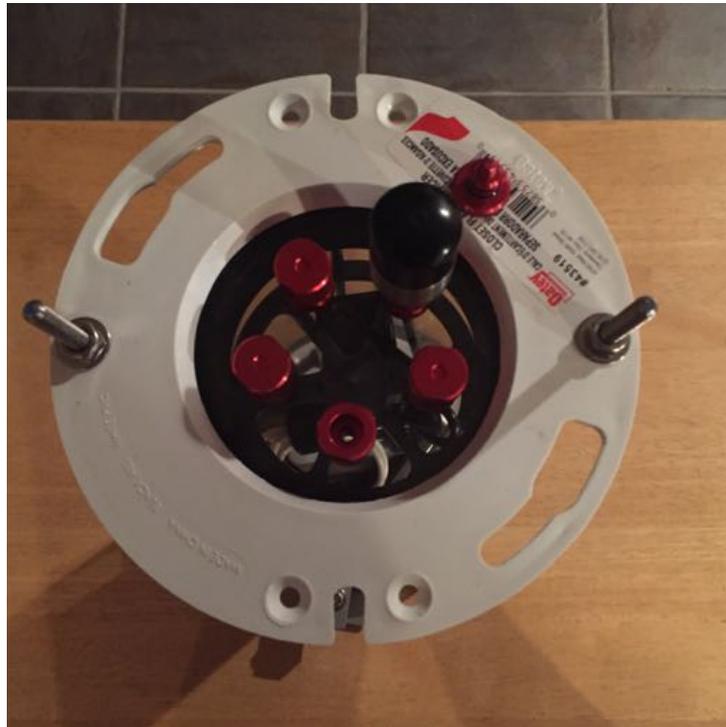


Fig. 3 Top of Aquipod showing black hydrophone. Notice the vent plug is removed and the vent to the enclosure is open in this photo. The vent plug must be closed for deployment.

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Fig. 4 Assembled device. If you are using the camera make sure the iPhone camera is facing outward and has an unobstructed field of view.



Fig. 5 Ready to deploy with app running, lines attached and camera facing outward with a clear field of view.

Prepare for deployment

The device should not be left out in bright sunlight once it is closed, as the interior will heat up causing the iPhone to shut off. Excessive heat may destroy the iPhone and power pack.

- Attach the carabiner clips at the end of the polypropylene line to the eyebolts at the bottom of the device.
- Feed the lines through the top white PVC flange making sure they can move freely.
- Slowly lower the device into the water seeking a relatively flat area.

- The maximum deployment depth of the device is about 100 feet, which is twice the length of the 50-foot polypropylene lines provided.

It is important that the power pack, which contains a lithium ion battery, does not get wet as it could explode.

The following sections describe other procedures needed to use the device.

Remove iPhone and power pack

The iPhone and power pack are not rigidly mounted and can be easily removed.

- Disconnect top mini-phone plug and bottom charging plug to remove the iPhone.
- Remove the top USB plug to remove the power pack.

Charge Device

Standard chargers are provided for the iPhone and power packs. It is recommended that the iPhone and power pack are fully charged for deployment.

Turn on hydrophone

- Plug XLR connector into the iRig preamp.
- Flip the slide switch to the “+48V” position.
- Turn the thumbwheel on the side all the way towards “Gain” (maximum gain setting).
- Insert mini phone plug into the iPhone.

Turn off hydrophone

- Flip the slide switch to the “OFF” position.

Turn off the preamp if you are not using the hydrophone.

Insert iPhone and power pack

- Plug power pack into USB connector.
- Connect top mini-phone plug and bottom charging plug to iPhone.

- Make sure iPhone screen faces inward and camera outward and sits on the bottom of the parts tray.

Run an app

Apps are provided for collecting acoustic and video data. Become familiar with the apps and the settings before using them in the Aquipod.

- Make sure iPhone is in Airplane Mode to reduce power consumption
- Set lock screen time interval to “Never” so that the device does not shut off.
- Launch an app and check the screen to make sure it is running before you close and deploy the device.

Be aware that the standard camera app will generate about a gigabyte of video data in about 15 minutes. It is best suited for the Aquipod lite device. The time-lapse app, which generates considerably less data, can run for up to about 12 hours.

Replace iRig battery

You have to remove the cable tie holding the iRig to the internal parts tray in order to open and replace the battery. After replacing the battery secure the iRig using a new cable tie.

When in Doubt, Ask

It is noted that although the device is designed and built for ocean deployment, parts of an Aquipod can be easily damaged by rough handling or improper assembly and operation.

If you have any questions please contact:

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Repairs and maintenance are charged at \$50/hour plus materials.